

**Notice of Allowability**

Application No.

10/596,877

Examiner

JERRY BROOKS

Applicant(s)

SALTERS ET AL.

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 07/29/2009.
2. ☒ The allowed claim(s) is/are 1-29.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- \* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |  |
|--|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application  |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date <u>20091008</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date _____    | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment  |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance                         |
|  | 9. <input type="checkbox"/> Other _____.   |

## **DETAILED ACTION**

### **EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Gregory L. Thorne on October 8, 2009 (see PTO-413).

The application has been amended as follows:

#### **In the Claim:**

In the first line of claim 16, "apparatus comprising" has been changed to "a volumetric display panel comprising".

In the third line of claim 16, "a first polarization switch comprising an input optical path and an optical output" has been changed to, "a first polarization switch comprising an input optical path for receiving a light source and an optical output."

In the twenty fourth line of claim 16, "wherein the first output of the second beam splitter defines an optical output path" has been changed to "wherein the first output of the second beam splitter defines an optical output path that provides an output of the volumetric display panel".

***Allowable Subject Matter***

2. Claims 1-29 are allowed.
3. The following is an examiner's statement of reasons for allowance:

With respect to claims 1 and 16, the prior art of record, taken alone or in combination, fail to disclose or render obvious a volumetric display comprising: the second beam splitter has first and second optical inputs respectively optically coupled to the first and second outputs of the first beam splitter, via respective said first and second optical paths, the second beam splitter diverting light at the first and second; inputs to first and second outputs of the second beam splitter according to a polarization state of light at the first and second inputs thereof; the first output of the second beam splitter defines the optical output path and the second output of the second beam splitter is optically coupled to a second input of the first beam splitter via a third optical path; each of the first, second and third optical paths respectively includes one of a second, a third and a fourth polarization switch, the first, second, third and fourth polarization switches adapted to thereby select cumulative combinations of one or more of said first, second and third optical paths between the input optical path and the output optical path.

With respect claim 20, the prior art of record, taken alone or in combination, fail to disclose or render obvious a method for generating a three dimension volumetric image, comprising: a first beam splitter configured with a first optical input coupled to an

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optical output of the first polarization switch that is inserted in the input optical path, the first beam splitter configured for diverting the input beam at the first optical input to a first and a second optical output respectively according to a polarization state of the input beam at the first optical input of the first beam splitter; receiving the input beam at a second beam splitter configured with a first and a second optical input respectively that are optically coupled to the first and second outputs of the first beam splitter, via a first and a second optical path respectively, the second beam splitter configured for diverting the input beam light incident at the second beam splitters first and second inputs to a first and a second output of the second beam splitter according to a polarization state of the incident light at the first and second inputs of the second beam splitter, wherein the first output of the second beam splitter defines the output optical path, and the second output of the second beam splitter is optically coupled to a second input of the first beam splitter via a third optical path, wherein each of the first, second and third optical paths respectively includes one of a second, a third and a fourth polarization switch controlling the polarization of the first, second, third and fourth polarization switches to select cumulative combinations of one or more of the first, second, and third optical paths between the input optical path and the output optical path, which is structurally arranged and functionally operated as in claim 20.

With respect to claims 2-15 and 17-19, claims 2-15 and 17-19 are allowable since they depend from claim 1.

With respect to claims 27 -29, claims 27 -29 are allowable since they depend from claim 16.

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With respect to claims 21 -26, claims 21 -26 are allowable since they depend from claim 20.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JERRY BROOKS whose telephone number is (571)270-5711. The examiner can normally be reached on Monday-Friday, 9 a.m.- 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diane Lee can be reached on (571) 272-2399. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JERRY BROOKS/  
Examiner, Art Unit 2851

/Georgia Y Epps/  
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